

NEW, CORRECTED, AND INTERESTING RECORDS FOR THE
KANSAS VASCULAR FLORA

Caleb A. Morse Craig C. Freeman Ronald L. McGregor

*R. L. McGregor Herbarium, Division of Botany
Biodiversity Research Center
University of Kansas, 2045 Constant Avenue
Lawrence, KS 66047, U.S.A.
cmorse@ku.edu ccfree@ku.edu*

ABSTRACT

Field and herbarium studies have produced records for 25 vascular plants previously undocumented in Kansas, or known only from historic records. Three taxa are considered to be native occurrences and 22 are considered the results of recent introductions. Non-native taxa represent 21.7% of the vascular flora of the state.

RESUMEN

Los estudios de campo y de herbario han dado citas de 25 plantas vasculares previamente sin documentar en Kansas, o conocidas únicamente de citas históricas. Tres taxa se consideran nativos y 22 son considerados introducciones recientes. Los taxa no nativos representan 21.7% de la flora vascular del estado.

Continuing field and herbarium studies in the grassland biome of central North American have produced records for 24 vascular plants previously undocumented in Kansas, and one species known only from a single, historic collection. Only three taxa are considered to be native occurrences in the state; the remaining 22 (marked with an asterisk below), including 21 species and two interspecific hybrids, are considered the results of recent introductions. Following the concepts of Richardson et al. (2000), we consider 11 of these introduced taxa to be casual aliens in Kansas, seven to be naturalized, and four to be invasive in the state. In reports of floristic novelties for the state since 1998 (Freeman et al. 1998; Freeman 2000; Freeman et al. 2003; Singhurst & Holmes 2005; Barnard 2006) new non-native taxa (52) have outpaced native taxa (33), which illustrates a trend in our knowledge of the Kansas flora. While the number of vascular taxa known for the state rose from 1,872 taxa in 1940 (Stuckey & Barkley 1993) to 2,366 in 2007 (Freeman, unpublished data), the percentage of introduced taxa has increased from 17.4% to 21.7%. A similar change in the relative abundance of non-native taxa has been documented for the Missouri flora by Yatskievych and Raveill (2001), who found that introduced taxa had increased from 22.8% to 27.7% between 1965 and 2001. We anticipate that the introduced component of the Kansas flora will continue to increase as a percentage of all taxa known for the state. These reports update the distribution data contained in *Atlas of the Flora of the Great Plains* (Great Plains Flora Association 1977) and *Flora of the Great Plains* (Great Plains Flora Association 1991). All voucher specimens are deposited in the R. L. McGregor Herbarium (KANU), University of Kansas.

****Aethusa cynapium* L.** (Apiaceae). Though reportedly poisonous, this European native is cultivated in North America for use as a homeopathic remedy. Fool's-parsley has been documented from most of the northeast U.S. and from Alabama (USDA, NRCS 2004). In the Midwest, it is known from Illinois (Mohlenbrock 1986), Minnesota (Ownbey & Morley 1991) and Wisconsin (Harriman 1972). Early reports of fool's-parsely in Kansas (Carruth 1873; Carruth 1877; Smyth 1890; Smyth 1892) were not substantiated with voucher specimens, however, and this species was not treated for the Great Plains by McGregor (1991). Upon reexamination, a specimen from Miami County reported by Freeman et al. (2003) as *Carum carvi* L. has proven to be *A. cynapium*, where it is considered to be a casual alien.

***Carex bulbostylis* Mack.** (Cyperaceae). Thick-style sedge is native to the south-central U.S. and, in the Great Plains, has been reported as far north as Oklahoma (Naczi & Bryson 2003). Recent examination of

specimens at KANU confirms the presence of *C. bulbostylis* in the Chautauqua Hills, in the southeast part of the state.

Voucher specimen: **KANSAS. Woodson Co.:** 10 mi N Yates Center, wooded area along Turkey Creek, 18 Jun 1975, *Stephens 85266*.

Carex corrugata Fernald (Cyperaceae). Native to the southeast U.S., as far north as Illinois, corrugate sedge was documented from several of the western two tiers of counties in Missouri (Yatskievych 2006) and was mapped for Kansas by Naczi and Bryson (2003), based on a single, historical specimen at NY (R.F.C. Naczi, in litt.). However, no vouchers in Kansas herbaria had been verified as belonging to *C. corrugata* and this species was not treated for the Great Plains by Kolstad (1991). Examination of historic specimens at KANU and several recent collections confirm the presence of corrugate sedge in two counties along the eastern border of the state.

Voucher specimens: **KANSAS. Cherokee Co.:** 1 mi E, 1 mi S Chetopas, 0.5 mi E Neosho River, roadside ditch, 3 Jun 1964, *Harms 2230* [Additional specimen at NY, fide Naczi]; 0.25 mi N, 3 mi E jct of US Hwy 69 & KS Hwy 96 at Crestline, Spring River Wildlife Area, T33S, R25E, sec 10, NE¼, SE¼ & sec 11, W½, SW¼, near 37°10'53", 94°38'59"W, elev 245–265 m, sandstone glade, post-blackjack oak forest on E-facing slope, and floodplain forest along Spring River, 17 Jun 2003, *Morse 9653* [Additional voucher at DOV]. **Linn Co.:** 3.5 mi S, 3.5 mi E Trading Post, Marais des Cygnes National Wildlife Refuge, T21S, R25E, sec 24, S½, SW¼, sec 25, N½, NW¼, & sec 26, NE¼, NE¼, 38.1944–38.1961°N, 94.6131–94.6254°W, elev 780–850 ft, periodically inundated swamp white-pin oak-sycamore bottomland forest and wet sedge-cordgrass prairie along tributary to Mine Creek, 14 May 2004, *Morse 10423 et al.* [Additional voucher at DOV]; 1.75 mi S, 4 mi E Trading Post, Marais des Cygnes National Wildlife Refuge, T21S, R25E, sec 13, NE¼, NE¼, 38.2259°N, 94.6124°W, elev 780 ft, bottomland pin oak-hickory-pecan forest remnant along Marais des Cygnes River, 20 May 2004, *Morse 10471 & Morse* [Additional voucher at DOV].

***Cerastium dubium** (Bast.) Guépin (Caryophyllaceae). First reported in North America from Washington in 1973 and from eastern North America in 1986 (Shildneck & Jones 1986), doubtful chickweed is now known from a handful of states in the Pacific Northwest, Midwest, and southern U.S. (Chester 2000; Belden et al. 2004; USDA, NRCS 2004). Though it has been documented from several of the western tier of counties in Missouri (Yatskievych 2006), a single collection confirms the presence of this European species in Kansas, where it is considered to be naturalized.

Voucher specimen: **KANSAS. Labette Co.:** Parsons, E-central part of town, Marvel Park, T31S, R20E, sec 20, NW ¼. 37.3387°N, 95.2481°W, elev 870–880 ft, mowed, weedy bank of Labette Creek and disturbed ground near parking lot in Marvel Park, 15 Apr 2003, *Freeman 19660*.

***Cymbalaria muralis** Gaertn. et al. (Scrophulariaceae). Native to the Mediterranean, Kenilworth ivy has been introduced as an ornamental throughout the northeast U.S. and in several western states (USDA, NRCS 2004). In the Great Plains, *C. muralis* has been documented in Nebraska and South Dakota. A recent collection confirms the presence of this species in Kansas. It is considered to be a casual alien in the state.

Voucher specimen: **KANSAS. Chase Co.:** Cottonwood Falls, N side of town, N end of Main St, on W side of street, T19S, R8E, sec 29, NE¼, NE¼, 38.3730°N 96.5418°W, elev 1200 ft, cracks in foundations of buildings and in sidewalk, 1 Apr 2006, *Freeman 21456*.

***Cyperus fuscus** L. (Cyperaceae). Introduced to North America from Eurasia, brown galingale is known from scattered localities throughout the U.S. and southeastern Canada (Gillett 1971; Tucker et al. 2003). This species has been reported along the Platte River in Douglas and Lincoln counties, Nebraska (Rolfsmeier 1995), and from several counties along the Missouri River in central Missouri (Yatskievych 1999). A large population was documented in 2003 and 2004 on dry bars along the Kansas side of the Missouri River, where it is considered to be naturalized.

Voucher specimens: **KANSAS. Leavenworth Co.:** Ft. Leavenworth, NE part, N side of Sherman Army Airfield, just S of Weston Bend of the Missouri River, 39°22'48"—23'28"N, 94°54'01"—11"W, elev ca 770 ft, mud flat along Missouri River, 30 Sep 2003, *Morse 9815*; Ft. Leavenworth, NE part, N side of Sherman Army Airfield, just S of Weston Bend of the Missouri River, 39°22'39"—41"N, 94°53'26"—52'50"W, elev 760–770 ft, muddy bar along river, 20 Nov 2003, *Morse 9911 et al.*; Ft. Leavenworth, E-central part, E side of Sherman Army Airfield, just S of Weston Bend of the Missouri River, 39.3645–39.3663°N, 94.8966–94.8902°W, elev ca 770 ft, sandy mudflats and muddy bank of river, 15 Oct 2004, *Morse 10871*; Ft. Leavenworth, NE part, N side of Sherman Army Airfield, just S of Weston Bend of the Missouri River, 39.3835°—39.3837°N, 94.9206–94.9290°W, elev 760 ft, sandy mud flats and muddy bank along river, 12

Oct 2004, *Morse 10858*; Ft. Leavenworth; S-central part, Area ca 0.5 mi NE main entrance to Fort and due N of water treatment plant, 39.3421—39.3348°N, 94.9111—94.9172°W, elev 760 ft, mudflats and muddy bank of Missouri River, 21 Oct 2004, *Morse 10898*.

Dichanthelium laxiflorum (Lam.) Gould (Poaceae). Soft-tufted panicgrass is known from throughout the southeast U.S. (Freckmann & Lelong 2003) and has been collected along the Kansas-Missouri border in Newton County, Missouri (Yatskievych 1999). A large population recently was discovered in extreme southeast Kansas, growing on sandy soil in a post oak-blackjack oak forest.

Voucher specimen: **KANSAS. Cherokee Co.:** 0.25 mi N, 3 mi E jct of US Hwy 69 & KS Hwy 96 at Crestline, Spring River Wildlife Area, T33S, R25E, sec 10, NE ¼, SE ¼ and sec 11, W½, SW¼, near 37°10'53"N, 94°38'59"W, elev 245–265 m, sandstone glade and post-blackjack oak forest on E-facing slope, 17 Jun 2003, *Morse 9665*.

****Euonymus alata*** (Thunb.) Siebold (Celastraceae). Winged burningbush is locally established throughout the northeastern U.S. and in Montana (Gleason & Cronquist 1991; USDA, NRCS 2004) and has been reported as “sporadic but becoming more widespread” in Missouri (Yatskievych 2006). In Kansas, this species is known from scattered stations in the eastern two tiers of counties, where it is considered to be invasive. It appears to be especially common in white oak-shagbark hickory upland forests in the northeasternmost part of the state.

Voucher specimens: **KANSAS. Cherokee Co.:** 1.5 mi E, 1.75 mi S Baxter Springs, Woods S of small stream, old home site in area, 2 Jun 1980, *Brooks 14724*. **Douglas Co.:** Lawrence, E side of University of Kansas Main Campus, T12S, R19E, sec 36, SE¼, 38.9576—38.9620°N, 95.2430—95.2424°W, elev 980–1010 ft, weedy woodlots between Battenfeld Scholarship Hall & Lilac Ln, 17 Apr 2006, *Morse 12672*. **Leavenworth Co.:** Ft. Leavenworth, W-central part, area to N of water reservoir and E of Hancock Hill, 39°21'57"—22'03"N, 94°56'06"—55'47"W, elev 850–1060 ft, mesic oak-hickory-basswood forest on NE-facing slope and hackberry-mulberry floodplain forest along tributary to Quarry Creek, 11 Jun 2003, *Morse 9497*; Ft. Leavenworth; W-central part, area to N and W of National Cemetery, 39°20'59"—21'01"N, 94°56'00"—14"W, elev 920–1010 ft, disturbed oak-hickory-basswood forest on SE-facing slope, 23 Jun 2003, *Morse 9695*; Ft. Leavenworth, W-central part, ravine 0.25 mi E of Bell Point, between reservoir and radio tower, 39°21'46"—43"N, 94°55'58"—56'14"W, elev 880–1000 ft, disturbed oak-hickory-basswood forest on moderate E-facing slopes with deep, steep-sided draws along tributary to Quarry Creek, 18 Jul 2003, *Morse 9761*; Ft. Leavenworth, W-central part, area to E of Wagner Point and NW of National Cemetery, 39°21'10"—16"N, 94°56'21"—55'49"W, elev 850–1030 ft, disturbed oak-hickory-basswood forest on steep slopes above tributary to Quarry Creek and floodplain forest along creek, 31 Oct 2003, *Morse 9877*. **Neosho Co.:** 1 mi S of Erie, Centerville Township, in woods just above Neosho River, near old river bridge, 17 Nov 2004, *Holland 10709*. **Wyandotte Co.:** 0.75 mi S, 0.75 mi E northern jct KS Hwy 5 & I-435, NW side of Wyandotte Co Lake, T10S, R24E, sec 19, NW¼, NW¼, 39.1702°N 94.7867°W, 850–900 ft, disturbed oak-hickory forest on moderate E-facing slope, 9 May 2004, *Morse 10384*.

****Eriochloa villosa*** (Thunb.) Kunth (Poaceae). Native to eastern Asia, woolly cup grass is known from scattered records throughout the U.S. (Shaw et al. 2003; Belden et al. 2004). In the Great Plains, this species has been documented in Nebraska (Rolfsmeier et al. 1991) and Iowa, where it has reportedly become a serious weed of agricultural crops (Stubbendieck et al. 1994; Darbyshire et al. 2003). Though reported for the state (USDA, NRCS 2004), woolly cup grass was not mapped from Kansas by Shaw et al. (2003) and to our knowledge a single, recent specimen confirms the presence of *E. villosa* in northeast part of the state. Based on its behavior in other states in the Great Plains, it is considered to be invasive.

Voucher specimen: **KANSAS. Douglas Co.:** 0.5 mi S, 2 mi E Big Springs, T12S, R17E, sec 18, S½, 39.0051°N, 95.4553°W, elev 1100 ft, Conservation Reserve Program field with high graminoid cover and low forb cover; terraced site with weedy, low-lying patches, 14 Jul 2005, *Fritts & Castle s.n.*

****Fatoua villosa*** (Thunb.) Nakai (Moraceae). Native to China, mulberry-weed was first reported in North America from Louisiana in 1964, where it had already been known for about 15 years (Vincent 2004). The species has subsequently spread through the continental U.S., and is now reported from 30 states and the District of Columbia (Vincent 2004). It often is reported as a weed of greenhouses and cultivated ground. In the Great Plains, *F. villosa* is known from eastern Iowa (Cusick 2002), eastern Missouri (Yatskievych & Raveill 2001), and Oklahoma (Taylor & Taylor 1981; Taylor et al. 1996), where it has reportedly become a nuisance. Mulberry-weed is added to the flora of Kansas based on a small population, introduced as a seed contaminant that has persisted for several years in a flower bed in the eastern part of the state. It is considered to be a casual alien.

Voucher specimen: **KANSAS. Douglas Co.:** Lawrence, SW side of town at 3410 W 24th Place, T13S, R19E, sec 10, NE¼, NE¼, 38°56'23"N 95°16'49"W, elev 870 ft, flower bed in front of house, 2 Sep 2004, *Freeman 20106*.

***Ligustrum obtusifolium** Sieb. & Zucc. (Oleaceae). Native to Japan, obtuse-leaf privet is naturalized throughout the northeastern U.S. (USDA, NRCS 2004). Recent fieldwork and examination of specimens at KANU misidentified as *L. vulgare* L. have confirmed that this species is naturalized in forested areas of eastern Kansas, where it is considered to be invasive. *Ligustrum vulgare*, for its part, is frequently planted in hedges in eastern Kansas, but has not been verified as an escape.

Voucher specimens: **KANSAS. Cherokee Co.:** E side of Baxter Springs, Kiwanis Park, along N side of US Hwy 166-400, T35S, R24E, sec 1, SE¼, NE¼, 37°01'35"N, 94°43'30"W, elev 790 ft, disturbed floodplain forest edge on W side of Spring River, 13 Apr 2004, *Morse 10343 & Roth*. **Douglas Co.:** University of Kansas Campus West, brushy wooded area SW of Bridwell Lab, area undisturbed for 45 years, 6 Nov 1995, *McGregor 41206*, 11 Jun 1996, *McGregor 41211*; Baldwin Woods, ca 2 mi N Baldwin City, Kansas Ecological Reserves, Ray and Eleanor Wall Woods, T14S, R20E, sec 28, S½, NW¼, elev 990–1100 ft, oak-hickory forest and floodplain forest along Coal Creek, disturbed right of way of abandoned RR tracks, 10 Aug 1991, *Freeman 4028*. **Leavenworth Co.:** 2 mi S, 3 mi W Leavenworth, steep, wooded bank of small creek, 19 Oct 1967, *Stephens 19459*; Ft. Leavenworth, W-central part, T8S, R22E, sec 15, SE¼, elev 900–1050 ft, mesic, upland, oak-hickory-maple-basswood forest on slopes SE of Wagner Point, steep draws with few limestone outcrops, 18 May 1995, *Freeman 7133*; Ft. Leavenworth, E of Wagner Point, T8S, R22E, sec 15, NE¼, SE¼, elev 950–1050 ft, mesic edge of oak-hickory forest clearing, 15 Jun 1995, *Elliott & Morse 634*; Ft. Leavenworth, SE corner along Corral Creek, E and W along Grant Ave, T8S, R22E, sec 23, SE¼, elev 770–800 ft, open banks of creek and wooded riparian area immediately W of Grant Ave, 12 Oct 1995, *Freeman 7863*; Ft. Leavenworth, SE corner, T8S, R22E, sec 23, SE¼. 39.3372°N, 94.9247°W, elev 800 ft, disturbed riparian forest along N side of Corral Creek, 27 May 2003, *Freeman 19863*; Ft. Leavenworth, NW part, Fort de Cavagnial Picnic Area, 39°22'19"N, 94°55'55"W, elev 1020 ft, weedy edge of oak-hickory-basswood forest and mowed parkland, 11 Jun 2003, *Morse 9519*; Ft. Leavenworth, W-central part, area to E of water reservoir, below Hancock Hill, 39°21'57"—22'00"N, 94°56'06"—55'41"W, elev 850–950 ft, mesic oak-hickory-basswood forest on NE-facing slope and hackberry floodplain forest along tributary to Quarry Creek, 8 Aug 2003, *Morse 9792*; Ft. Leavenworth, S-central part, area ca 0.5 mi NE main entrance to Fort and due N of water treatment plant, 39.3421—39.3348°N, 94.9111—94.9172°W, elev 760–850 ft, weedy, early successional woodlands and forests on N and E-facing slopes along Corral Creek, dominated by *Carya-Quercus* and *Celtis-Gleditsia-Maclura* associations and exotic shrubby understory and mid-successional floodplain forest on E side of RR tracks, dominated by *Acer negundo-A. saccharinum-Salix* and *Platanus-Populus* associations with *Carex* abundant in understory, 21 Oct 2004, *Morse 10888*. **Neosho Co.:** 2 mi W Erie, low woods above Neosho River, 24 Nov 1994, *Holland 8228*.

***Lonicera xbella** Zabel (*L. morrowii* A. Gray × *L. tatarica* L., Caprifoliaceae). Pretty honeysuckle is a cultivated shrub that has become established in the northeast U.S., New Mexico, and Wyoming (USDA, NRCS 2004). Recent examination of specimens at KANU revealed that plants from extreme northeastern Kansas, previously misidentified as *L. tatarica*, represent the first verified records of this fertile hybrid from the state, where it is considered to be invasive. Interestingly, in examining specimens of the *Lonicera tatarica* complex *sensu* Green (1966) for his treatment in the *Flora of Missouri*, Whittmore (2006) did not find material referable to either parent species occurring outside cultivation in that state. However, *L. xbella* is known from scattered localities, primarily through the eastern half of Missouri. Our re-examination of Kansas material leaves *L. tatarica* represented by a single collection from Cloud County. *Lonicera morrowii* has not been verified from the state, although, using characters employed by Green (1966) in distinguishing hybrids of this complex, two specimens here referred to *L. xbella* (*Morse 12673b*, *Morse 12673c*) appear somewhat intermediate between *L. xbella* and *L. morrowii*.

Voucher specimens: **KANSAS. Douglas Co.:** Lawrence, just N of 19th St at S end of alley between the 1800 blocks of Indiana and Mississippi Sts, T13S, R19E, sec 1, SE¼, NE¼. 38.9503°N, 95.2437°W, elev 880 ft, weedy, brushy right of way in alley, 11 Apr 2006, *Morse 12671*; Lawrence, E side of University of Kansas Main Campus, T12S, R19E, sec 36, SE¼. 38.9576—38.9620°N, 95.2430—95.2424°W, elev 980–1010 ft, weedy woodlots between Battenfeld Scholarship Hall & Lilac Ln, and on S side of 12th St, just E intersection with Oread Ave, 17 Apr 2006, *Morse 12673a*, *Morse 12673b*, *Morse 12673c*, 25 Apr 2006, *Morse 12673b-A*; Lawrence, E side of University of Kansas Main Campus, T12S, R19E, sec 36, SE¼. 38.9620°N 95.2424°W, elev 980 ft, weedy woodlot on S side of 12th St, just E inters with Oread Ave, 5 Jun 2006, *Morse s.n.*; Lawrence, N side of University of Kansas Main Campus, T12S, R19E, sec 36, NE¼, SW¼, near 38.9640°N, 95.2493°W, elev 940–990 ft, weedy woodlot on moderate, N-facing slope along 11th St, just N of Phi Kappa Theta fraternity, 25 Apr 2006, *Morse s.n.*, 5 Jun 2006, *Morse s.n.* **Leavenworth Co.:** Ft. Leavenworth, W-central part, Hills ESE of Wagner Point, T8S, R22E, sec 15, SE¼, elev 900–1050 ft, mesic, upland, oak-hickory-basswood-maple forest on hills ESE of Wagner Point, 3 May 1995, *Freeman 7087*; Ft. Leavenworth, S-central part, area ca 0.5 mi NE main entrance to Fort and due N of water treatment plant, 39.3421—39.3348°N,

94.9111—94.9172°W, elev 760 ft, weedy, early successional woodlands and forests on N and E-facing slopes along Corral Creek, dominated by *Carya-Quercus* and *Celtis-Gleditsia-Maclura* associations and exotic shrubby understory, 21 Oct 2004, *Morse 10879*.

Malus L. (Rosaceae). Three species of Eurasian crab-apple, which are frequently cultivated in the U.S. and reported as occasional escapes throughout the northeastern states (Gleason & Cronquist 1991; Rhoads & Block 2000; USDA, NRCS 2004), have been observed growing spontaneously in eastern Kansas, where they sometimes occurred with congener *M. floribunda* Sieb. ex Van Houtte. This latter species was first reported for the state by Freeman et al. (1998).

***Malus baccata** Borkh. (Rosaceae). Siberian crabapple is considered to be naturalized in the state.

Voucher specimens: **KANSAS. Douglas Co.:** Lawrence, University of Kansas Campus West, just S of Foley Hall, T13S, R19E, sec 2, S½, NE¼, SE¼. 38.9480°N, 95.2638°W, elev 910 ft, weedy tree line along chain link fence, 11 Apr 2005, *Morse s.n.*, 25 May 2005, *Morse s.n.*; Lawrence, University of Kansas Campus West, T13S, R19E, sec 2, S½, NE¼, SE¼. 38.9477°N, 95.2632°W, elev 920 ft, weedy lots near Bridwell Lab, 7 Apr 2006, *Morse 12665*, *Morse 12666*; 25 Apr 2006, *Morse 12665-A*, *Morse 12666-A*; 2 Aug 2006, *Morse 12665-B*, *Morse 12666-B*, 11 Oct 2006, *Morse 12665-C*, *Morse 12666-C*; Lawrence, SW side of town, T13S, R19E, sec 20, NE¼. 38.9131°N, 95.3189°W, elev 840 ft, low, wooded, disturbed ground S of the radio-control airfield, 17 Apr 2006, *Freeman 21459* & *Morse*.

***Malus prunifolia** (Willd.) Borkh. Plumleaf crabapple is considered to be a casual alien in the state.

Voucher specimens: **KANSAS. Douglas Co.:** Lawrence, near inters of 31st and Louisiana Sts, T13S, R19E, sec 12, SE ¼, SE ¼, near 38.9293°N, 95.2435°W, elev 820 ft, weedy bank of Naismith Creek, 6 Apr 2006, *Morse 12661*, *Morse 12662*; 24 Apr 2006, *Morse 12661-A*, *Morse 12662-A*; 2 Aug 2006, *Morse 12661-B*, *Morse 12662-B*; 11 Sep 2006, *Morse 12662-C*.

***Malus sieboldii** Regel. Toringo crabapple is considered to be a casual alien in the state.

Voucher specimens: **KANSAS. Douglas Co.:** Lawrence, University of Kansas Campus West, brushy woodland SW of greenhouse; area originally an open wooded pasture, undisturbed for 45 yr, 7 Apr 1995, 26 Apr 1996, *McGregor 41119*; Lawrence, just N of intersection of Iowa St and 21st St, T13S, R19E, sec 1, W edge NW¼, SW¼. 38.9480°N, 95.2607°W, elev 920 ft, weedy drainage ditch along E side of Iowa St, 7 April 2006, *Morse 12664*, 24 Apr 2006, *Morse 12664-A*; 2 Aug 2006, *Morse 12664-B*.

***Najas minor** Allioni (Hydrocharitaceae). Native to Europe, brittle waternymph has steadily expanded its range westward in North America since first documented in New York in 1934 (Clausen 1936; Meriläinen 1968; Haynes 1979). The species has been reported from southeast Missouri (USDA, NRCS 2004) and south-central Oklahoma (Nelson & Couch 1981, Haynes 2000). A recent collection confirms the presence of *N. minor* in Kansas, where the collector reports this species has been present for several years. It is considered to be naturalized in the state.

Voucher specimen: **KANSAS. Coffey Co.:** ca 2 mi N, 2.5 mi E Burlington, Wolf Creek Lake: vicinity of Wolf Creek Generating Station, T21S, R15E or R16E, near 38.2280°N, 95.6842°W, elev ca 1070 ft, station intake and elsewhere in lake, growing in mixed population with *Najas guadalupensis* subsp. *guadalupensis*, 09 Aug 2006, *Haines s.n.*

***Oxalis corniculata** L. (Oxalidaceae). Introduced to the U.S. from tropical America, creeping woodsorrel is a common weed of greenhouses (Cusick 2002). It previously has been reported from 43 states and the District of Columbia in the continental U.S. (USDA, NRCS 2004) and from the majority of the states in the Great Plains. In Kansas, this species was first noticed in greenhouses around the University of Kansas in 1982; it has been collected from disturbed sites throughout the eastern part of the state since then. It is considered to be naturalized in the state.

Voucher specimens: **KANSAS. Chautauqua Co.:** 4 mi N, 0.5 mi E Peru, Riley Memorial Cemetery, T33S, R12E, sec 3, SE¼, SE¼, SW¼. 37°08'28"N, 96°04'56"W, elev 260 m, mowed, weedy, upland tallgrass prairie in cemetery, 23 Apr 2001, *Morse 5419* & *Michener*; 0.75 mi W Peru, Peru Cemetery, T34S, R12E, sec 20, W¼, NE¼, 37°04'45"N, 96°06'41"W, elev 285 m, mowed, weedy, upland tallgrass prairie in cemetery, scattered oaks and junipers, 23 Apr 2001, *Morse 5435* & *Michener*. **Cherokee Co.:** 4.75 mi S, 2.75 mi E jct of US Hwy 69 & KS Hwy 96 at Crestline, S side of SE Lostline Rd, T34S, R25E, sec 3, S½, SE¼. 37.1077°N, 94.6550°W, elev 810–900 ft, open post oak-blackjack oak-Texas hickory woodland on moderate to steep, predominately W- and S-facing slopes above Spring River, 28 Sep 2005, *Morse 11803 et al.* **Douglas Co.:** Lawrence, University of Kansas West Campus, in greenhouse beds and pots, 8 Mar 1982, *McGregor 32859*; Lawrence, 521 Lawrence Ave, in garden and lawn, 14 Oct 1997, *McGregor 41335*; Lawrence, yard of private residence at 1733 Mississippi St, T13S, R20E, sec 1, SE¼, NE¼, 38.9518°N, 95.2446°W, elev 890 ft, cultivated garden, 25 Oct 2005, *Morse s.n.*

Philadelphus L. (Hydrangeaceae). Three taxa of mock-orange are reported here for the first time from Kansas. Two occurrences may represent instances in which individuals have merely persisted from prior cultivation. However, both observations were of large plants, several meters in diameter, occurring well away from any recent human habitation. A fourth taxon, *P. pubescens* Loisel (hoary mock orange), is occasionally planted as an ornamental in eastern Kansas, but has not been observed to escape.

***Philadelphus coronarius** L. Native to Eurasia, sweet mock-orange has been reported from the eastern U.S., as far west as Minnesota and Missouri (Mohlenbrock 1986; Rhoads & Block 2000, USDA, NRCS 2004). A single large individual inside the edge of an oak-hickory forest confirms the presence of this species in Kansas, where it is considered to be a casual alien.

Voucher specimens: **KANSAS. Wyandotte Co.:** 0.5 mi N, 1.75 mi E jct of KS Hwy 32 & Loring Rd on E side of Bonner Springs, Theodore Naish Boy Scout Reservation, T11S, R23E, sec 22, S $\frac{1}{4}$, SW $\frac{1}{4}$ and sec 27, NW $\frac{1}{4}$. 39.0689—39.0735°N, 94.8507—94.8481°W, elev 900–980 ft, mesic, upland, white oak-white ash-hickory forest on generally N-facing slopes of ridge above N side of Kansas River, 18 April 2004, *Morse 11053*; 12 May 2005, *Morse 11216 et al.*

***Philadelphus inodorus** L. Scentless mock-orange is native to southeastern North America, but is frequently cultivated and has escaped throughout the northeast U.S. (Mohlenbrock 1986; Rhoads & Block 2000; USDA, NRCS 2004). A single individual found in extreme northeast Kansas confirms the presence of this species in the state, where it is considered to be a casual alien.

Voucher specimen: **KANSAS. Leavenworth Co.:** Ft. Leavenworth, E of Sherman Army Airfield along Missouri River, T8S, R23E, sec 12, S $\frac{1}{2}$, elev 750–800 ft, open disturbed area along Missouri River, 28 Jun 1998, *Elliott & Freeman 834*.

***Philadelphus x nivalis** Jacques (*P. coronarius* L. \times *P. pubescens* Loisel). Though not reported as an escape in North America, this hybrid mock-orange was noted by Hu (1954–1956) as “one of the most commonly cultivated *Philadelphus* in the gardens of Boston.” A single large individual growing 30 m inside the edge of an oak-hickory forest confirms the presence of this taxon in Kansas, where it is considered to be a casual alien.

Voucher specimens: **KANSAS. Leavenworth Co.:** Ft. Leavenworth, W-central part, ravine 0.25 mi E of Bell Point, between reservoir (to N) and radio tower (to S), 39°21'46"N 94°55'58"W, elev 880–1000 ft, disturbed oak-hickory-basswood forest on moderate E-facing slopes with deep, steep-sided draws along tributary to Quarry Creek, 18 Jul 2003, *Morse 9759*; 3 Jun 2004, *Morse 10537 & Rossow*.

***Poncirus trifoliata** (L.) Raf. (Rutaceae). Native to Asia, hardy-orange has been naturalized throughout the southeastern U.S. and as far north as Pennsylvania (Rhoads & Block 2000; USDA, NRCS 2004). In the Great Plains, this species has been reported from Oklahoma and eastern Texas (USDA, NRCS 2004). A single collection confirms the presence of hardy-orange in Kansas. It is considered to be a casual alien in the state.

Voucher specimen: **KANSAS. Cowley Co.:** 1.5 mi W Arkansas City, Chaplin Nature Center, T34S, R3E, sec 16, S $\frac{1}{2}$. 37°05'32"N, 97°06'17"W, elev 1080–1170 ft, forested uplands and floodplain, and open, sandy floodplain along W side of the Arkansas River, 25 Sep 2004, *Freeman 20199*.

***Pyracantha coccinea** M. Roem. (Rosaceae). Native to Eurasia, scarlet firethorn is reported from scattered states through the southern U.S., a handful of northeastern states, and Oregon (USDA, NRCS 2004). The species is reported by Welsh et al. (2003) as “persisting, and escaping rarely” in Utah. A single occurrence confirms the presence of this species in Kansas, where it is considered to be a casual alien.

Voucher specimen: **KANSAS. Douglas Co.:** Lawrence, ca 2 mi S, Haskell Ave, 0.5 mi S of Wakarusa River, T13S, R20E, sec 20, W $\frac{1}{2}$. 38.9043°N, 95.2225°W, elev 860 ft, grazed, upland pasture E of blacktop, 17 Apr 2006, *Freeman 21461 & Morse*.

***Rhodotypos scandens** (Thunb.) Makino (Rosaceae). A native of Japan, jetbead is widely cultivated in eastern North America as an ornamental shrub and has been reported as an occasional escape, or perhaps a more aggressive invader, in the northeast U.S. and from Alabama and Georgia (Rhoads & Block 2000; Lamont & Young 2002; USDA, NRCS 2004). In the Midwest, jetbead is known from Illinois (Mohlenbrock 1986) and Minnesota (Ownbey & Morley 1991), but the species has not been reported in the Great Plains. Two populations were discovered recently in forested areas of northeast Kansas, where it is considered to be naturalized.

Voucher specimens: **KANSAS. Leavenworth Co.:** Ft. Leavenworth, W-central part, area to N of water reservoir and E of Hancock Hill, 39°21'57"—22'03"N, 94°56'06"—55'47"W, elev 850–1060 ft, mesic oak-hickory-basswood forest on NE-facing slope and hackberry-mulberry floodplain forest along tributary to Quarry Creek, 11 Jun 2003, *Morse 9507*; Ft. Leavenworth, NW part, Bluffs W of N end of Sherman Army Airfield and ca 0.75 mi NE Hancock Hill, 39°22'04"—29"N, 94°55'59"—40"W, elev 770–850 ft, maple-basswood-oak forest on steep NE- and W-facing bluffs above Missouri River, and marshy floodplain forest at base of bluffs, 10 Nov 2003, *Morse 9896 & Loring*. **Shawnee Co.:** SE side of Topeka, Dornwood Park, T12S, R16E, sec 9, E½, near 39°01'18"N, 95°38'18"W, elev 900–960 ft, wooded hillside, 9 May 2002, *Hansen s.n.*

****Viola striata*** Aiton (Violaceae). Native to the eastern U.S. as far west as Oklahoma (USDA, NRCS 2004), striped cream violet was mapped by Steyermark (1963) from throughout the Ozarks and in Clay Co., Missouri. Though it is occasionally cultivated in shaded gardens and lawns, the species was excluded from the Great Plains by Brooks & McGregor (1991) for lack of specimen evidence. A recent observation of a persistent population confirms the presence of *V. striata* in eastern Kansas. It is considered to be a casual alien in the state

Voucher specimen: **KANSAS. Lyon Co.:** 0.5 mi S Hartford, T20S R13E, sec 22, SE¼, SE¼, elev 350 m, mowed upland cemetery with remnant prairie, surrounded by mesic to dry-mesic tallgrass prairie in Osage Questas, 23 Apr 1997, *Morse et al. 1160*.

****Zoysia japonica*** Steud. (Poaceae). Korean lawngrass is naturalized sporadically throughout the eastern U.S. and in California (Catling et al. 1977; Anderson 2003; USDA, NRCS 2004). Though commonly cultivated in lawns in Kansas, the species has only recently been confirmed as naturalized in the state.

Voucher specimen: **KANSAS. Neosho Co.:** 1 mi S Galesburg, New Mount Hope Cemetery, T30S, R19E, sec 5, SW¼, SE¼. 37°27'33"N, 95°21'01"W, elev 970 ft, mowed, grassy, E side of cemetery, scattered moist depressions with abundant *Juncus* and *Cyperus*, 16 Jun 2005, *Freeman 20505*.

ACKNOWLEDGMENTS

We thank R.F.C. Naczi (DOV) for identification of specimens of *Carex corrugata*; the curators of FHKSC, KSC, KSP, KSTC, and WASH for access to, and information about, holdings in their collections; and Robert Kaul, Stephen L. Timme, and an anonymous reviewer for helpful comments on the manuscript.

REFERENCES

- ANDERSON, S.J. 2003. *Zoysia*. In: M.E. Barkworth, K.M. Capels, S. Long, and M.B. Piep, eds. Flora of North America north of Mexico. Volume 25: Magnoliophyta: Commelinidae (in part): Poaceae, part 2. Oxford University Press. New York, NY. Pp. 281–284.
- BARNARD, I. 2006. Exotic plant introduction in Kansas, two new species. *Sida* 22:777–779.
- BELDEN, A., JR., G.P. FLEMING, J.C. LUDWIG, J.F. TOWNSEND, N.E. VAN ALSTINE, C.E. STEVENS, and T.F. WIEBOLT. 2004. Noteworthy collections: Virginia. *Castanea* 69:144–153.
- BROOKS, R.E. and R.L. MCGREGOR. 1991. Violaceae. In: Great Plains Flora Association. Flora of the Great Plains. University Press of Kansas, Lawrence. Pp. 255–264.
- CARRUTH, J.H. 1873. Report on the botany of Kansas for the year 1873. *Trans. Kansas Acad. Sci.* 2:9–14.
- CARRUTH, J.H. 1877. Centennial catalog of the plants of Kansas. *Trans. Kansas Acad. Sci.* 5:40–59.
- CATLING, P.M., A.A. REZNICEK, and J.L. RILEY. 1977. Some new and interesting grass records from southern Ontario. *Canad. Field-Naturalist* 91:350–359.
- CHESTER, E.W. 2000. Noteworthy collections: Tennessee. *Castanea* 65:168–170.
- CLAUSEN, R.T. 1936. Studies in the genus *Najas* in the northern United States. *Rhodora* 38:333–345 + 1 plate.
- CUSICK, A.W. 2002. Six non-native species newly discovered in the Iowa vascular flora. *Sida* 20:405–407.
- DARBYSHIRE, S.J., C.E. WILSON, and K. ALLISON. 2003. The biology of invasive alien plants in Canada. 1. *Eriochloa villosa* (Thunb.) Kunth. *Canad. J. Plant Sci.* 83:987–999.
- FRECKMANN, R.W. and M.G. LELONG. 2003. *Dichanthelium*. In: M.E. Barkworth, K.M. Capels, S. Long, and M.B. Piep, eds. Flora of North America north of Mexico. Volume 25: Magnoliophyta: Commelinidae (in part): Poaceae, part 2. Oxford University Press. New York, NY. Pp. 406–450.

- FREEMAN, C.C. 2000. Vascular plants new to three states in the central United States. *Trans. Kansas Acad. Sci.* 103:51–54.
- FREEMAN, C.C., R.L. MCGREGOR, and C.A. MORSE. 1998. Vascular plants new to Kansas. *Sida* 18:593–604.
- FREEMAN, C.C., C.A. MORSE, and R.L. MCGREGOR. 2003. New vascular plant records for the grassland biome of central North America. *Sida* 20:1289–1297.
- GILLET, J.M. 1971. *Cyperus fuscus* L. new to Canada. *Canad. Field-Naturalist* 85:190.
- GLEASON, H.A. and A. CRONQUIST. 1991. *Manual of the vascular plants of northeastern United States and adjacent Canada*. (second edition). New York Bot. Gard. Bronx, NY.
- GREAT PLAINS FLORA ASSOCIATION. 1977. *Atlas of the flora of the Great Plains*. Iowa State University Press, Ames.
- GREAT PLAINS FLORA ASSOCIATION. 1991. *Flora of the Great Plains*. University Press of Kansas, Lawrence.
- GREEN, P.S. 1966. Identification of the species and hybrids in the *Lonicera tatarica* complex. *J. Arnold Arbor.* 47:75–88.
- HARRIMAN, N.A. 1972. Records on the flora of Wisconsin. *Rhodora* 74:156–157.
- HAYNES, R.R. 1979. Revision of North and Central American *Najas* (Najadaceae). *Sida* 8:34–56.
- HAYNES, R.R. 2000. Najadaceae. In: *Flora of North America Editorial Committee, eds. Flora of North America north of Mexico. Volume 22: Magnoliophyta: Alismatidae, Arecidae, Commelinidae (in part), and Zingiberidae*. Oxford University Press. New York, NY. Pp. 77–83.
- HU, S.-Y. 1954–1956. A monograph of the genus *Philadelphus*. *J. Arnold Arbor.* 35:275–333, 36:53–109, 36:325–368, 37:15–90.
- KOLSTAD, O.A. 1991. Cyperaceae. In: *Great Plains Flora Association. Flora of the Great Plains*. University Press of Kansas, Lawrence. Pp. 1059–1113.
- LAMONT, E.E. and S.M. YOUNG. 2002. Noteworthy plants reported from the Torrey Range–2001. *J. Torrey Bot. Soc.* 129:363–371.
- MCGREGOR, R.L. 1991. Apiaceae. In: *Great Plains Flora Association. Flora of the Great Plains*. University Press of Kansas, Lawrence. Pp. 584–604.
- MERILÄINEN, J. 1968. *Najas minor* All. in North America. *Rhodora* 70:161–175.
- MOHLENBROCK, R.H. 1986. *Guide to the vascular plants of Illinois*. Southern Illinois University Press, Carbondale.
- NACZI, R.F.C. and C.T. BRYSON. 2003. *Carex* sect. *Griseae*. In: *Flora of North America Editorial Committee, eds. Flora of North America north of Mexico. Volume 23: Magnoliophyta: Commelinidae (in part): Cyperaceae*. Oxford University Press. New York, NY. Pp. 448–461.
- NELSON, E.N. and R.W. COUCH. 1981. Occurrence of *Najas minor* and *Najas marina* (Najadaceae) in Oklahoma. *Proc. Oklahoma Acad. Sci.* 61:78.
- OWNBEY, G.B. and T. MORLEY. 1991. *Vascular plants of Minnesota: a checklist and atlas*. University of Minnesota Press, Minneapolis.
- RICHARDSON, D.M., P. PYŠEK, M. REJMÁNEK, M.G. BARBOUR, F.D. PANETTA, and C.J. WEST. 2000. Naturalization and invasion of alien plants: concepts and definitions. *Diversity & Distrib.* 6:93–107.
- RHOADS, A.F. and T.A. BLOCK. 2000. *The plants of Pennsylvania: an illustrated manual*. University of Pennsylvania Press, Philadelphia.
- ROLFSMEIER, S.B. 1995. Keys and distributional maps for Nebraska Cyperaceae, part 1: *Bulbostylis*, *Cyperus*, *Dulichium*, *Eleocharis*, *Eriophorum*, *Fimbristylis*, *Fuirena*, *Lipocarpha*, and *Scirpus*. *Trans. Nebraska Acad. Sci.* 22:27–42.
- ROLFSMEIER, S.B., R. KAUL, and D.M. SUTHERLAND. 1991. New and corrected floristic records for Nebraska – 4. *Trans. Nebraska Acad. Sci.* 18:141–150.
- SHAW, R.B., R.D. WEBSTER, and C.M. BERN. 2003. *Eriochloa*. In: *Flora of North America Editorial Committee, eds. Flora of North America north of Mexico. Volume 25: Magnoliophyta: Commelinidae (in part): Poaceae, part 2*. Oxford University Press. New York, NY. Pp. 505–515.
- SHILDNECK, P. and A.G. JONES. 1986. *Cerastium dubium* (Caryophyllaceae) new for the eastern half of North America (comparison with sympatric *Cerastium* species, including cytological data). *Castanea* 51:49–55.
- SINGHURST, J.R. and W.C. HOLMES. 2005. *Uvularia sessilifolia* L. (Liliaceae): new to Kansas. *Trans. Kansas Acad. Sci.* 108:57–58.

- SMYTH, B.B. 1890. Catalog of the flowering plants and ferns of Kansas. Bull. Washburn Coll. Lab. Nat. Hist. 2:43–61.
- SMYTH, B.B. 1892. Check list of the plants of Kansas. Published by the author. Topeka, Kansas.
- STEYERMARK, J.A. 1963. Flora of Missouri. Iowa State University Press, Ames.
- STUBBENDIECK, J., G.Y. FRIISOE, and M.R. BOLICK. 1994. Weeds of Nebraska and the Great Plains. Nebraska Dept. of Agriculture, Lincoln.
- STUCKEY, R.L. and T.M. BARKLEY. 1993. Weeds. In: Flora of North America Editorial Committee, eds. Flora of North America north of Mexico. Volume 1: Introduction. Oxford University Press. New York, NY. Pp. 193–198.
- TAYLOR, R.J. and C.E. TAYLOR. 1981. Plants new to Arkansas, Oklahoma and Texas. Sida 9:25–28.
- TAYLOR, C.E., L.K. MAGRATH, P. FOLLEY, P. BUCK, and S. CARPENTER. 1996. Oklahoma vascular plants: additions and distributional comments. Proc. Oklahoma Acad. Sci. 76:31–34.
- TUCKER, G.C., B.G. MARCKS, and J.R. CARTER. 2003. *Cyperus*. In: Flora of North America Editorial Committee, eds. Flora of North America north of Mexico. Volume 23: Magnoliophyta: Commelinidae (in part): Cyperaceae. Oxford University Press. New York, NY. Pp. 141–191.
- USDA, NRCS. 2004. The PLANTS database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge.
- VINCENT, M.A. 2004. Spread of *Fatoua villosa* (Mulberry Weed; Moraceae) in North America. J. Kentucky Acad. Sci. 65:67–74.
- WELSH, S.L. 2003. Rosaceae. In: S.L. Welsh, N.D. Atwood, S. Goodrich, and L.C. Higgins, eds. A Utah Flora. Monte L. Bean Life Science Museum, Brigham Young University. Provo, UT. Pp. 550–577.
- WHITTEMORE, A. 2006. Caprifoliaceae. In: G. Yatskievych Steyermark's flora of Missouri. Vol. 2. Missouri Botanical Garden, St. Louis. Pp. 765–794.
- YATSKIEVYCH, G. 1999. Steyermark's flora of Missouri. Vol. 1. Missouri Dept. of Conservation, Jefferson City.
- YATSKIEVYCH, G. 2006. Steyermark's flora of Missouri. Vol. 2. Missouri Botanical Garden, St. Louis.
- YATSKIEVYCH, G. and J.A. RAVEILL. 2001. Notes on the increasing proportion of non-native angiosperms in the Missouri flora, with reports of three new genera for the state. Sida 19:701–709.